

WHAT IS CLAIMED IS:

1. A method of allocating memory in a wireless communication system, comprising:
 - 5 loading an application into a wireless communication device;
 - compiling at least a portion of the application into native instructions;
 - 10 determining a runtime sensitivity of the native instructions;
 - determining availability of internal memory; and
 - 15 inserting at least a portion of the native instructions into the internal memory at runtime based on the determined availability of internal memory and the runtime sensitivity determination.
- 15 2. The method of claim 1 wherein the application comprises a Java application with at least one Java class, each Java class including at least one bytecode.
- 20 3. The method of claim 1 wherein compiling at least a portion of the application into native instructions comprises passing the application through a just-in-time compiler, the just-in-time compiler adapted to detect runtime sensitivity of the native instructions.
- 25 4. The method of claim 1 wherein the compiled application comprises a combination of bytecodes and native instructions.
5. The method of claim 1 wherein determining the runtime sensitivity comprises detecting a memory attribute code.

6. The method of claim 1 wherein determining the runtime sensitivity comprises analyzing a bytecode for memory addressing requirements and marking the analyzed bytecodes when the memory addressing requirements are 5 extensive.

7. The method of claim 1 wherein inserting the native instructions into the internal memory comprises copying a set of instructions associated with the application from a flash memory to an internal random-access memory.

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8. The method of claim 1 wherein the internal memory comprises an internal random-access cache memory.

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9. The method of claim 1 further comprising:
adding de-referencing code to the compiled application, wherein the de-referencing code allows an application loader to insert a portion of the compiled application into the available internal memory prior to executing the application.

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10. The method of claim 1 further comprising:
constructing a de-referencing table; and
attaching the de-referencing table to the compiled application, wherein the de-referencing table includes memory location information and memory size information associated with the portion of the native instructions to 25 be inserted into the internal memory prior to executing the application.

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11. The method of claim 1 further comprising:
updating a pseudo-cache table, the pseudo-cache table including memory location information and memory size information associated with the portion of the native instructions inserted into the internal memory.

12. The method of claim 1 further comprising:
executing the compiled application.

- 5 13. The method of claim 1 further comprising:
relinquishing the internal memory having the inserted native
instructions when the compiled application has been executed.

- 10 14. The method of claim 1 further comprising:
updating a pseudo-cache location indicator, the pseudo-cache
location indicator including an address of an available pseudo cache allocated to
the inserting of the native instructions at runtime.

- 15 15. The method of claim 1 further comprising:
updating a pseudo-cache size indicator, the pseudo-cache size
indicator including a number of bytes available in a pseudo cache.

16. A computer usable medium including a program to allocate memory
in a wireless communication system, comprising:
20 computer program code to load an application into a wireless
communication device;
computer program code to compile at least a portion of the
application into native instructions;
computer program code to determine a runtime sensitivity of the
25 native instructions;
computer program code to determine availability of internal
memory; and
computer program code to insert at least a portion of the native
instructions into the internal memory at runtime based on the determined
30 availability of internal memory and the runtime sensitivity determination.

17. The computer usable medium of claim 16 wherein computer program code to compile at least a portion of the application into native instructions comprises computer program code to pass the application through a just-in-time compiler, the just-in-time compiler adapted to detect runtime sensitivity of the native instructions.
18. The computer usable medium of claim 16 further comprising: computer program code to add de-referencing code to the compiled application, wherein the de-referencing code allows an application loader to insert a portion of the compiled application into the available internal memory prior to executing the application.
19. The computer usable medium of claim 16 further comprising: computer program code to construct a de-referencing table; and computer program code to attach the de-referencing table to the compiled application, wherein the de-referencing table includes memory location information and memory size information associated with the portion of the native instructions to be inserted into the internal memory prior to executing the application.
20. The computer usable medium of claim 16 further comprising: computer program code to update a pseudo-cache table, the pseudo-cache table including memory location information and memory size information associated with the portion of the native instructions inserted into the internal memory.

21. The computer usable medium of claim 16 further comprising:
computer program code to execute the compiled application.
- 5 22. The computer usable medium of claim 16 further comprising:
computer program code to relinquish the internal memory having
the inserted native instructions when the compiled application has been
executed.
- 10 23. The computer usable medium of claim 16 further comprising:
computer program code to update a pseudo-cache location
indicator, the pseudo-cache location indicator including an address of an
available pseudo cache allocated to the inserting of the native instructions at
runtime.
- 15 24. The computer usable medium of claim 16 further comprising:
computer program code to update a pseudo-cache size indicator,
the pseudo-cache size indicator including a number of bytes available in a
pseudo cache.
- 20 25. A wireless communication device, comprising:
means for loading an application into the wireless communication
device;
means for compiling at least a portion of the application into native
instructions;
means for determining a runtime sensitivity of the native
instructions;
means for determining availability of internal memory; and
means for inserting at least a portion of the native instructions into
30 the internal memory at runtime based on the determined availability of internal
memory and the runtime sensitivity determination.

26. The device of claim 25 further comprising:
means for adding de-referencing code to the compiled application,
wherein the de-referencing code allows an application loader to insert a portion
5 of the compiled application into the available internal memory prior to executing
the application.

27. The device of claim 25 further comprising:
means for constructing a de-referencing table; and
10 means for attaching the de-referencing table to the compiled
application, wherein the de-referencing table includes memory location
information and memory size information associated with the portion of the native
instructions to be inserted into the internal memory prior to executing the
application.

- 15 28. The device of claim 25 further comprising:
means for updating a pseudo-cache table, the pseudo-cache table
including memory location information and memory size information associated
with the portion of the native instructions inserted into the internal memory.

- 20 29. The device of claim 25 further comprising:
means for executing the compiled application.

30. The device of claim 25 further comprising:
25 means for relinquishing the internal memory having the inserted
native instructions when the compiled application has been executed.

31. The device of claim 25 further comprising:
means for updating a pseudo-cache location indicator, the pseudo-cache location indicator including an address of an available pseudo cache
5 allocated to the inserting of the native instructions at runtime.

32. The device of claim 25 further comprising:
means for updating a pseudo-cache size indicator, the pseudo-cache size indicator including a number of bytes available in a pseudo cache.

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